

Date: Thursday, 3/13/2008 1:02:14 PM
 User: Kim Johnston

Process Sheet

13

Customer	CU-DAR001 Dart Helicopters Services			Drawing Name	412 X-TUBE INST,LOW NARROW FWD		
Job Number	38012			Part Number	D412664105TRN		
Estimate Number	13209			Drawing Number	D412-664-145 REV C		
P.O. Number				Project Number	N/A		
This Issue	3/13/2008	S.O. No.		Drawing Revision	C		
Prsht Rev.	NC			Material			
First Issue	11	Type	LANDING GEAR	Due Date	3/28/2008	Qty:	1
Previous Run				Um:	Each		
Written By							
Checked & Approved By	JF 08 03 13						
Comment	Est Rev A New Issue 08-03-06 DD verified by:ec						

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description:	
1.0	D6019128	Crosstube Material	
Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Pick: Qty Part number .Description Batch 1 D6019-128 Crosstube <u>532310</u> Check OD = 2.7500", ID = a.m 08.03.13 ①			
2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE	
Comment: MORISEIKI 1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA689 2-Turn first side as per Folio FA689 3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D412-664-145. J.F/a.m 08/03/24 ①			
3.0	QC1	INSPECT ALL DIM TO DIM SHEET	
Comment: INSPECT ALL DIM TO DIM SHEET J.F/a.m 08/03/24 ①			
4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE	
Comment: MORI SEIKI CNC LATHE LARGE 1-Turn second side as per Folio FA689 2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D412-664-145 3- Remove sand and plugs a.m/J.F 08/03/24 ①			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/13/2008 1:02:14 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 412 X-TUBE INST,LOW NARROW FWD

Job Number: 38012

Part Number: D412664105TRN

Job Number:



Seq. #: Machine Or Operation:

Description :

4-Scribe part # and batch # using vibrating stylus as per Dwg D412-664-145 Inside of Cuff(Donot
engrave on outside of tube)

5.0 QC1 INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

AM/J.F.

08/03/24 (1)

6.0 QC8 SECOND CHECK



Comment: SECOND CHECK

AM

08/03/27

(1)

7.0 LANDING GEAR 1 LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

AM

8-3-31

1-Polish entire outside surface of crosstube

8.0 HAND FINISHING1 HAND FINISHING RESOURCE #1



AM 8-3-31

Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

9.0 QC3 INSPECT POWDER COAT/CHEMICAL CONVERSION



DP

8-3-31

Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

10.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Identify and stock in kanban rack

Location: 46

DP

8-3-31

11.0 QC21 FINAL INSPECTION/W/O RELEASE



08/04/08 (1)

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



U 08-3-31

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. C
		D412-664-145	SHEET 1 OF 3
DATE		TITLE	
07.03.29		CROSSTUBE ASS'Y (412 LOW-N FWD) NTS	
A	06.12.21	SCALE	
B	07.03.01	CHG RUBBER CUSHION	
C	07.03.29	CHG CLAMP & RUBBER CUSHION LGTH.	

RELEASED07.04.24 ~~07.04.24~~**PARTS LIST:**

Qty	Part Number	Description
X	D412-664-145	CROSSTUBE ASSEMBLY (412 LOW-NARROW FWD)
1	D6019-128	CROSSTUBE
1	D2856-250-842	ABRASION STRIP
2	D2893-1	SUPPORT
1	D3189-3	CHAFING SHIELD
4	D3595-063-450	RUBBER CUSHION
2	MS21920-24	CLAMP
4	MS21920-25	CLAMP (OR MS21920-26)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

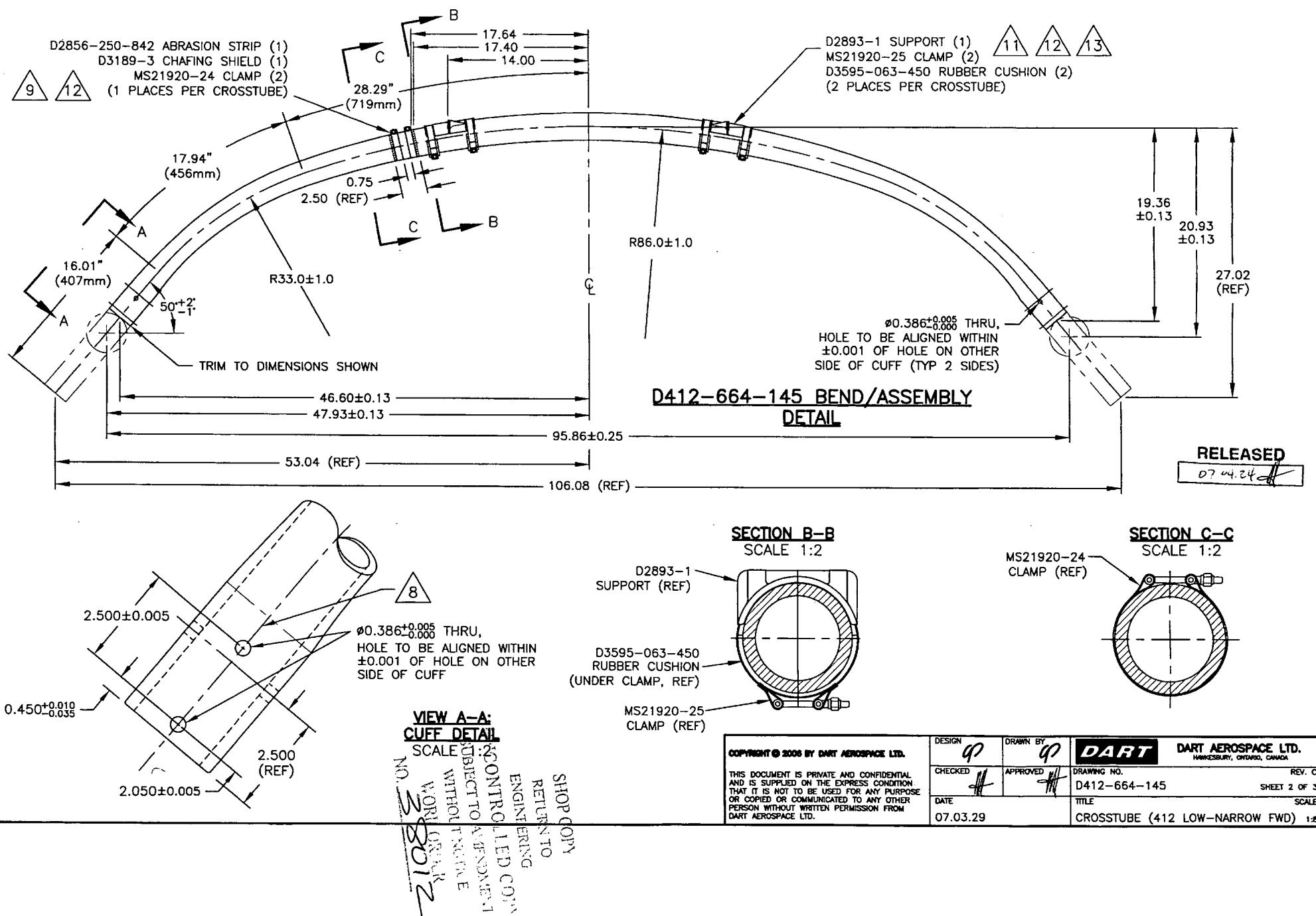
GENERAL NOTES:

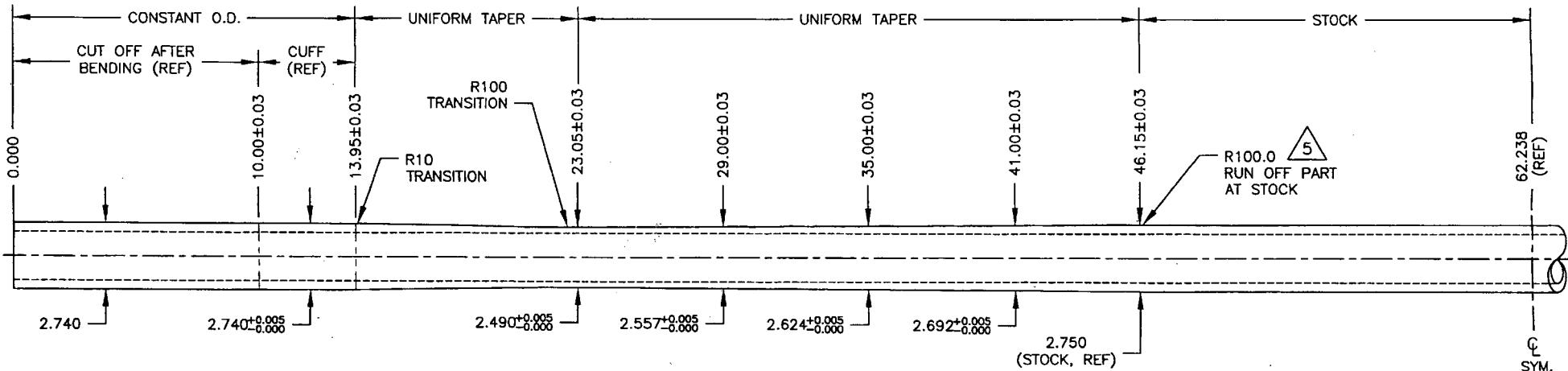
- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6019-128
FINISHED LENGTH = 124.48 ± 0.020 (BEFORE BENDING/TRIMMING)
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR D3189-3 CHAFING SHIELD AND ASSOCIATED HARDWARE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-XXX-YYY ABRASION STRIPS WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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WITHOUT NOTICE

WORK ORDER

38012





D412-664-145 MACHINING DETAIL

RELEASED
07.04.09

NO. 212
WORKED BY 203
SUBJECT TO ATTENDANT
UNCONTROLLED DOCUMENT
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DART AEROSPACE LTD.

DESIGN	DRAWN BY	DART	DART AEROSPACE LTD. HAWTHORPE, ONTARIO, CANADA
CHECKED	APPROVED		DRAWING NO. D412-664-145
DATE			REV. C
07.03.29			SHEET 3 OF 3
			SCALE 1:4
			TITLE CROSSTUBE (412 LOW-NARROW FWD)

DART AEROSPACE LTD	Work Order:	38012
Description: Cross tube Assembly (-412 Low Narrow 20 Fwd)	Part Number:	0412-664-105
Inspection Dwg: D412-664-14 Rev: C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

First Article Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
2.740"	$\pm .005$ $-.000$	2.740"	✓			
2.490"	$\pm .005$ $-.000$	2.491"	✓			
2.557"	$\pm .005$ $-.000$	2.562"	✓			
2.624"	$\pm .005$ $-.000$	2.629"	✓			
2.692"	$\pm .005$ $-.000$	2.695"	✓			
124.48"	$\pm .020$	124.500	✓			
2.740"	$\pm .005$ $-.000$	2.740"	✓			
2.490"	$\pm .005$ $-.000$	2.491"	✓			
2.557"	$\pm .005$ $-.000$	2.562	✓			
2.624"	$\pm .005$ $-.000$	2.629	✓			
2.692"	$\pm .005$ $-.000$	2.693	✓			

Measured by:	J.F. / Ann	Audited by:	GML	Prototype Approval:	
Date:	08/03/24	Date:	08/03/27	Date:	

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/RF	

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